Liverpool John Moores University

Title: OBJECT ORIENTED PROGRAMMING
Status: Definitive
Code: **3000BELCM** (101116)
Version Start Date: 01-08-2011

Owning School/Faculty: Arts, Professional and Social Studies
Teaching School/Faculty: Bellerby's College - Brighton

Team	emplid	Leader
Jarmila Hickman		Y

Academic Level:	FHEQ3	**Credit Value:**	12.00	**Total Delivered Hours:**	68.00
Total Learning Hours:	120	**Private Study:**	52		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	66.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Technology	AS1	Assessed practical projects	50.0	
Exam	AS2	Closed book Examination on OOP concepts	50.0	2.00

Aims

The course aims to:

Provide students with an understanding of the fundamental concepts involved in object-oriented programming; object, class, protocol, hierarchy, inheritance, encapsulation, polymorphism and collaboration.

Provide students with an introduction to the Java programming language and an open source Java IDE (BlueJ).

Learning Outcomes

After completing the module the student should be able to:

1   Use facilities of the Java IDE: the library classes, Collections Framework, debugging facilities.
2   Understand the characteristics of Java classes, extend existing classes and create new classes according to a specification.
3   Understand the concepts of inheritance, hierarchies, overriding, abstract classes, interfaces, polymorphism, reuse of code, static methods and variables.
4   Use the principles of the Code Design process.
5   Interchange information between Java Programmes and external sources.
6   Test code in an object-oriented context.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

TECHNOLOGY   1   2   4   5   6

EXAM   3   4   5

Outline Syllabus

1. Introduction to Java IDE
2. Basic concepts of object-oriented programming: attribute, state, protocol, class and subclass
3. Simple extensions of existing classes: writing the code for simple methods
4. Investigation of inheritance, hierarchies, overriding, abstract classes, interfaces, polymorphism, reuse of code, static methods and variables
5. Creation of new classes from scratch
6. Use of the facilities and library classes provided by Java
7. Identification of different kinds of errors and use of debugging facilities using Java IDE
8. Code Design process
9. Implementation of a more extensive class according to a specification
10. Introduction to concept of collections
11. Importance of reuse
12. Selection of appropriate collection class from Java's Collections Framework
13. Getting information into a Java program from an external source and writing information to an external source
14. Saving objects to file from a running program and reading back into program
15. Testing code in an object-oriented context

Learning Activities

Students will progress through:

Workbook guiding students through a series of demonstrations introducing OOP concepts using Java programmes that demonstrate these concepts to students via interactive tasks. Students will be guided and supported by the teacher.

A structured series of progressively complex programming tasks designed to develop experience of using Java code to write simple and more advanced programmes that develop students understanding of the concepts above and their experience of the Java IDE and Java code structures.

Undertake series of 2/3 assessed projects that require increasing understanding of the OOP concepts, familiarity with the facilities of the Java IDE and knowledge of Java code structures.

References

Course Material	Book
Author	Kolling, M
Publishing Year	2006
Title	Objects First with Java
Subtitle	A Practical Introduction using BlueJ
Edition	3rd Edition
Publisher	Prentice Hall/Pearson Education
ISBN	9780131976290

Course Material	Book
Author	Wu, C Thomas
Publishing Year	2005
Title	An Introduction to Object-Oriented Programming with Java
Subtitle	
Edition	
Publisher	McGraw-Hill Education
ISBN	9780071116800

Course Material	Book
Author	Liang, Y Daniel
Publishing Year	2006
Title	Introduction to Java Programming
Subtitle	Fundamentals First: Core Version
Edition	
Publisher	Prentice Hall
ISBN	9780132237383

Notes

This module provides students with an understanding of object-oriented

programming along with an introduction to Java as a programming language and an open source Java IDE (BlueJ).

Assessment:
 Students will complete 2/3 assessed projects that test students familiarity with the facilities of the Java IDE and knowledge of Java code structures.
(Where practical projects are of a different scale their weighting will take account of this. A division of 10%, 20%, 20% will be used where one introductory project is used to familiarise students with the practical projects, followed by 2 larger projects. A division of 25%, 25% will be used where the introductory project is not required because students have gained enough project experience from the practical learning tasks)
Students will be able to ask for assistance with these assessed projects from the teacher; teachers will adjust the assessed projects marks for those students who have needed more assistance to complete the tasks than has been given to the group as a whole. This will allow all students to complete the assessed projects without inflating assessment grades. This is a standard procedure used by IGCSE and A level Examination Boards

Students will complete a 2 hour closed book examination testing their understanding of the concepts of OOP.